MAE4120 V26 Instructions

Information about the exam

- The exam should be completed individually
- You need to prepare an R script (file extension .R) which documents all the analyses done in the exam. Annotate the code to enable the reader to follow what is done.
- Upload the R script and the exam answers as separate files in the submission.
- The exam will decide your grade for the course and the grading scale is A-F.

If you have any questions during the exam, please contact studentinfo@cemo.uio.no

Good luck!

MAE4120 V26 Exam description

MAE4120 Item response theory

Your task is to:

- Find a data set of your own choosing.
- Conduct an empirical analysis with the data using item response theory.
- Write a report on your findings.

In the report, how and when the data were obtained must be carefully detailed. In the analysis, you should utilize methods that we have discussed in the course. If there are missing data, you should describe how these were handled in the analysis. The topic of the analysis can involve the applications we have discussed in the course or it can involve other applications. Examples of topics include but are not limited to:

- Evaluation of the psychometric properties of a scale or test using item response theory
- Item selection or scale construction
- Investigation of the differential item functioning of items on a scale or test with respect to different groups
- Classification or identification of individuals based on item responses
- Estimation of relationships between background variables and a latent construct

When conducting the analysis you should apply the methods of model fit evaluation and item fit evaluation that we have discussed during the course. Be careful to motivate the decisions made in the analysis, for example, why a particular covariate is included in a regression model or why a particular item response theory model is used in your setting. You must also refer to the scientific literature when appropriate. There is a zero-tolerance for plagiarism for this exam. Any text fragment taken from another source must be put in quotation marks and referenced appropriately. Excessive quotations should be avoided. The submitted text will be subject to analysis by anti-plagiarism software.

Structure of the report

The exam should be written similarly to an article in an academic journal and be between 2500 and 3500 words long, excluding the abstract, reference list, figures, tables and any appendices. Regarding formatting guidelines, we suggest to follow American Psychological Association version 7 and you are required to do so with respect to the references. The following outline should be used for the exam:

- Abstract (maximum 200 words)
- Introduction
  - Introduce the topic matter and present a brief outline of previous research.
- Research questions
  - Clearly and concisely define the research questions of the study.
- Methods
  - Briefly describe the methods and procedures that the study will use.
- Results
  - Present the results of the study and how the results answer the research questions.
- Discussion
  - Interpret the results and discuss the implications of your study. Also discuss how generalizable the results are and what the limitations of the study are.
- References
  - A list of references that you have cited in the document.
  - Follow the publication manual of the American Psychological Association version 7.

Data sources

You are free to use whichever data source you want. Some examples of sources with freely available data are:

- Chinese Health and Retirement Study LINK
- Health and Retirement Study LINK
- National Health and Nutrition Examination Survey LINK
- Programme for International Student Assessment LINK
- Trends in International Mathematics and Science Study (TIMSS) LINK
- Programme for the International Assessment of Adult Competencies LINK

1 MAE4120 V26 R script upload

Please upload your R script here.

Maximum marks: 0

2 MAE4120 V26 Exam answers

Please upload your exam answers here.

Maximum marks: 0